

hour from the southwest was reported from Albuquerque, N. Mex., and from the Bill Williams Lookout Station, Ariz. By the 19th the wind subsided. It seems probable that local electric storms occurred within the more elevated forested districts, from which only a few reports are available at present.

Fire-weather warnings were issued again on the evening of Monday, the 23d, for fresh to strong winds, mostly westerly, for Tuesday, the 24th, to include Utah, northern Arizona, and northern New Mexico, and strong shifting, mostly westerly winds for Colorado, with thunderstorms probable in northeastern Colorado. This warning was occasioned by a low-pressure area over the plateau and Rocky Mountain regions, which was spreading and drifting eastward. Forests had continued very dry and inflammable and meteorological conditions indicated further and serious fire hazard. On the following day fresh to strong winds were reported at different points in the district, and local thunderstorms, generally without appreciable precipitation, occurred in eastern Colorado. Information was received through the press and cooperative observers of damage from wind, hail, and lightning in northeastern Colorado, one man having been killed by lightning and two others injured.—*Lawrence C. Fisher.*

SAN FRANCISCO FORECAST DISTRICT

The warm wave which prevailed over this district at the close of May continued until the 5th, and was broken on the 6th, when a depression moving through western Canada caused rain in the north Pacific states. Seasonable weather then prevailed, until another depression moving over western Canada gave rain in the northern portion of this district on the 17th, and 18th, with cooler weather.

A warm wave began to develop over this district on the 19th, and slowly increased in intensity until the end of the month. On the 30th, June records for high temperatures were broken at Walla Walla, Baker and Winnemucca.

Fire-weather warnings were issued throughout the district on the 19th, and 26th. Cautionary fire-weather warnings were distributed by radio broadcast from the 1st to the 5th, and from the 19th until the close of the month.

Special flying-weather forecasts along the coast were made for the Navy, from San Pedro to Port San Luis on the 27th, and from Port San Luis to San Francisco on the 28th.—*G. H. Willson.*

627.41 (73) RIVERS AND FLOODS

By H. C. FRANKENFIELD, Meteorologist

There were no flood stages reached in the rivers of the Atlantic States during the month of June except for a single day, June 27, in the Santee River of South Carolina. Warnings were promptly issued after the heavy rains of June 24 and 25. No damage was done.

The Black Warrior River of Alabama was in flood near the end of May, and warnings were issued on May 29 for a flood in the Tombigbee River from Demopolis, Ala., to the mouth. Flood stages were reached on June 2 and continued for five days, with a crest at Lock No. 4, Demopolis, of 42.8 feet on June 4, 3.8 feet above flood stage. Only lowest bottoms were overflowed, about 3,300 acres, involving a loss in prospective crops of \$23,500, and in suspension of business operations, \$1,000. Value of property saved through warnings, \$9,300.

During the month of May rains had been frequent and at times heavy over Ohio, Indiana, and Illinois with resulting floods. The same conditions continued during the first decade of June. Naturally the soil was well saturated and the first heavy rain brought about another rapid rise in all rivers, very few failing to exceed the flood stage. The floods, however, were moderate except in some of the smaller tributary streams in the State of Ohio, and as a rule only lowlands were flooded, and without damage of consequence. The only severe flood occurred in Mad River, a tributary of the Great Miami River of Ohio. In this river the flood did much damage, particularly along the Buck Creek section of the city of Springfield. Two hundred homes were flooded, steam and electric railroad service crippled, bridges washed away, crops destroyed, livestock drowned, and business retarded. The rain fell so rapidly that drainage ditches and sewers were overtaxed. The losses reported amounted to \$535,000, of which \$50,000 was in farm and truck products. The effectiveness of the Miami Conservancy project was again strikingly illustrated in the City of Dayton and below. The dams easily withstood the enormous pressure and triumphantly survived their greatest test since their completion.

There was, of course, some minor damage done below Dayton, mainly to lowlands without levee protection. Above Dayton, however, all tributary streams were out of their banks and great damage of the usual character was done. One of the largest items of expense was for the removing of immense masses of debris brought down by the flood waters.

The city of Piqua, on the main river, suffered severely through the collapse of the city waterworks raceway, flooding much of the western portion of the city, and compelling the suspension of railroad operations. The water supply from Piqua northward to Sidney was also cut off for a time.

Losses to crops in the Miami Valley were estimated at \$1,000,000, much of it through inundation of crops planted in storage territory behind the conservancy dams, an occurrence that should be and is expected at times.

The floods in Indiana and Illinois were moderate as a rule, although prospective crop losses, 18,000 acres of wheat and corn, were estimated at \$220,000, while suspension of business caused other losses of about \$25,000. The money value of property saved through flood warnings was about \$25,000.

For the first time since 1909 the Maumee River of Ohio reached the flood stage of 15 feet during the month of June. No warnings were necessary and no damage resulted.

Another destructive local flood occurred during the evening of June 13 in Carter County, Tenn., mainly along the upper Watauga River. Between 11 and 15 inches of rain fell within a few hours over a small portion of the narrow valley, drowning eleven persons and doing damage to the amount of \$500,000. Six miles from the locus of the heaviest rain the fall was only 1 inch, and 15 miles away in another direction only from 0.50 to 1.60 inches.

The Tallahatchie River of Mississippi was in flood from June 6 to 27, inclusive, and about 30,000 acres of land, mostly uncultivated, were overflowed. Only nominal damage was done.

The Mississippi River at Keokuk, Iowa, passed the flood stage of 14 feet on June 29 for a single day, and at the close of the month was above the flood stage from Hannibal, Mo., to the mouth of the Missouri River at Alton, Ill. Moderate flood stages also prevailed for a